



The role of intermediaries in innovation response capacity development: The case of livestock in Ethiopia

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Note : PhD paper competition submission

Abstract

Ethiopia has one of the largest livestock populations in Africa. However, the volume of its livestock and red meat exports is surprisingly low. Increasing the volume of exports has important implications not just for the private sector but also for livelihoods of the poor. This task is becoming increasingly difficult with each passing day, given rising awareness of the global outbreak of diseases and the ever-increasing quality and safety concerns of consumers all around the world. This paper addresses this shortcoming by analyzing three different projects — dealing with different livestock-related challenges — which are geared to increase the volume of livestock exports from Ethiopia. It then explores the process of intermediation in the development of innovation response capacity. The first project, titled the GL-CRSP Pastoral Risk Management Project (PARIMA), focuses on creating missing linkages between pastoralists and the private sector. It was initiated at a time when the rapid development of a private export industry depended on the supply of small ruminants — a requirement that the private sector was unable to fulfill because of a poorly-functioning livestock value chain. The second project, Pastoralist Livelihoods Initiative (PLI), was able to successfully achieve livelihoods objectives in the later stages of a drought. This paper examines how the project, by involving different stakeholders, was able to raise awareness of the importance of creating a positive linkage between livestock exporters and pastoralists during a drought. The third project, USAID SPS LMM, is focused on improving Ethiopia's capacity and competitive advantage for meat and livestock exports. The paper provides an account of how this project stepped in during a ban on livestock exports from Ethiopia, due to Foot and Mouth Disease (FMD), by Egypt, the country's one of the largest importers. The findings of this study clearly show how indispensable the intermediaries are for innovation response capacity; in assisting and linking different stakeholders (companies, pastoralists, etc.) in accessing knowledge and other sources to overcome different challenges.

Key words : innovation response capacity, innovation systems, intermediaries, livestock exports, Ethiopia

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1. Introduction

Ethiopia has one of the largest livestock populations in Africa. This includes more than 38 million cattle, 30 million small ruminants, nearly 1 million camels and 4.5 million equines and 32 million chickens (CSA, 2007)² with livestock ownership currently contributing to the livelihoods of an estimated 80 percent of the rural population. In contrast to this, the volume of its livestock and red meat exports is surprisingly low. Thus, increasing the volume of exports has important implications not just for the private sector but also for livelihoods of the poor. This task is becoming increasingly difficult with each passing day, given rising awareness of the global outbreak of diseases and the ever-increasing quality and safety concerns of consumers all around the world. However, the ability of companies, sectors and governments to innovate in response to these evolving and unpredictable challenges and opportunities is becoming increasingly central to the economic performance of developing countries. This capacity is referred as *innovation response capacity* (Keskin et al, 2008). Despite the obvious importance of this capacity, its fundamental and underlying issues are poorly understood and documented, particularly in relation to developing countries such as Ethiopia. This paper examines the role of third parties — so-called intermediaries — and analyzes how they play a central role in the development of “innovation response capacity”.

This paper first puts in picture what is meant by innovation response capacity and addresses the abovementioned shortcoming by analyzing three different projects — dealing with different livestock-related challenges — which are geared to increase the volume of livestock exports from Ethiopia. This draws on material compiled from case study; interviews held with key-informants in Ethiopia. To explore the specific elements of innovation response capacity, the starting point was to follow the four point analytical framework developed by the World Bank to investigate agricultural innovation capacity (World Bank, 2006). This was further employed and tested in an other case study conducted in Kenya (Keskin et al, 2008). With the Kenyan study, the elements that were necessary for innovation response capacity once again was analyzed and put forward. However, in that study; businesses/sectors were able to participate in networks or other forms of non-market based interactions and thus able to respond to different challenges (without intermediaries). Therefore, this study does not focus on the question of how the companies/sectors are able to respond to the challenges by themselves. Evidently, research along these lines is important and should be the subject of continuous empirical investigation. However, the intent of this study is to provide insights and recommendations on if the companies/sectors especially (in developing countries) with poor infrastructure and linkages are not able to respond.

² <http://www.fao.org/docrep/010/ah880e/ah880e00.htm#r20>

2. Key terms and concepts

a. Innovation Systems as a framework

The system of innovation concept emerged in the 1980s to explain the differences in innovative performances of developed countries (Nelson, 1993; Lundvall, 1992; Freeman, 1995). The national perspective underlying National Innovation Systems (NIS) has been predominantly adopted on the basis that many institutions, culture, language, common norms, technology policy, and education influencing innovation have a national character (Lundvall, 1992). But, proponents of the approach admit that these systems are open and heterogeneous and that there can be other levels (local, sectoral) at which they can be analysed (Lundvall, 1992; Malerba, 2002). Thus the above mentioned interactions can be analyzed from a local, sectoral or international perspective. Further, UNCTAD(2006) on LDCs identifies some weaknesses as weak linkages within the system between different actors, government agencies, national laboratories, universities, industries and grassroots innovators which are not functioning together in an integrated systemic framework. As these linkages gain importance, a particular R&D-centred model of innovation which interprets innovation as a simple supply-push phenomenon is no longer valid for different sectors including agriculture. Although the innovation systems concept is relatively new to agricultural policy makers and agricultural research managers in developing countries, it is increasingly suggested as a way of revisiting the question of how to strengthen agricultural innovation capacity (Hall et al. 2001; Clark et al. 2003; Hall 2005). Once again the significant change from the conventional linear perspectives on agricultural research and development emphasize the importance of studying the elements of an *innovation system* such as the actors' roles and patterns of interactions, the formal and informal rules - so called institutions - that influence their practices and behaviors and so on. Thus, using the innovation systems approach³ as a framework for the analysis provides a broader perspective.

A previous study conducted in Kenya (Keskin et al, 2008) used and tested the framework developed for the World Bank on enhancing agricultural innovation in New Agriculture (WB, 2006). The same report has made progress in developing qualitative tools for diagnostic assessments on agricultural innovation systems. Further, the four elements of the analytical framework for the World Bank are: (1) key actors and their roles, (2) the actors' attitudes and practices, (3) the effects and characteristics of patterns of interaction, and (4) the enabling environment for innovation. (Table 1)

³ For a detailed background and underpinnings of innovation system, see World Bank report (2006).

Table 1 : Checklist for the framework

??	<i>Actors, the roles they play, and the activities in which they are involved</i> , with an emphasis on diversity of public and private sector actors and on the appropriateness of their roles.
??	<i>Attitudes and practices of the main actors</i> , with an emphasis on collaboration, potential inefficiencies, patterns of trust, and the existence of a culture of innovation.
??	<i>Patterns of interaction</i> , with an emphasis on networks and partnerships, inclusion of the poor, and the existence and functions of potential coordination and stakeholder bodies.
??	<i>Enabling environment (policies and infrastructure)</i> , with an emphasis on the role of policies related to science, technology, and fiscal concerns; the role of farmer and other organizations in defining research and innovation challenges; and the significance of legal frameworks.

Although this framework has been applied to different agricultural sectors⁴ in developing country environments, it was tested with a study that focused on the livestock sector in Kenya to analyze the underpinnings of innovation response capacity development.

b. Innovation Response Capacity

The higher degree of market integration accompanied by the globalization is increasingly exposing farmers and industries to increasing competition in the global market place and changing consumer demands and standards and norms in distant markets. The ever increasing rate of change in these markets means that responsiveness is likely to be the critical element of innovation capacity. However, this is not the same as the way that technological capabilities have been specified (e.g. Lall, 1992, 2004) or the innovation capabilities — knowledge and skill required for the creation of new technology — that is, major changes in the design and core features of products and production processes (Ernst, Ganiatos and Mytelka, 1998). The ability of companies, sectors and governments to innovate in response to evolving and unpredictable challenges and opportunities is becoming increasingly central to the economic performance of developing countries. Despite the obvious importance of this capacity- *referred as innovation response capacity*- its fundamental and underlying issues are poorly understood and documented, particularly in relation to developing countries such as Ethiopia. Therefore, the elements that are necessary for innovation response capacity development were discussed in a previous study conducted in Kenya (Keskin et al, 2008). In summary, the Kenyan study developed an analytical framework to investigate and document innovation response capacity. This was also based on case study material, focusing on two livestock product companies - Farmer's Choice and Kenchic- in Kenya to show how they have responded to changing market and animal disease issues in recent years. The key findings in Kenya study can be summarized in three points :

⁴ The eight case studies included medicinal plants and vanilla production in India; food processing and shrimp production in Bangladesh; cassava processing and pineapple production in Ghana; and cassava processing and cut flower production in Colombia.

- The main 4 elements of the World Bank study were necessary and important in the analysis for innovation response capacity however was fairly weak to understand the poorness of the response.
- Patterns of interaction and sector coordination (in livestock) was weak; linkages between companies and the various agencies of the public sector were very weak or non existent and this was associated with the historical developments of the sector. In addition, social capital had been important in the development of innovation response capacity, thus the analytical framework needed to expand to be more appreciative of its role.
- The cases were important to show that how the companies had worked around the above mentioned weaknesses -provided that sufficient links to market information were established- so that they could access international markets not just for the technology but also for knowledge to respond to different challenges.

In summary, in that study; businesses/sectors were able to participate in networks or other forms of non-market based interactions and thus able to respond to different challenges (without intermediaries). The aim of this study is to provide insights and recommendations on if the companies/sectors especially (in developing countries) with poor infrastructure and linkages are not able to respond. Thus whether the intermediaries had a role in this process was a question that needed to be investigated.

c. Intermediaries

Howells (2006: 720) defines an innovation intermediary as 'an organization or body that acts as an agent or broker in any aspect of the innovation process between two or more parties. Such intermediary activities include: helping to provide information about potential collaborators; brokering a transaction between two or more parties; acting as a mediator, or go-between, bodies or organizations that are already collaborating; and helping find advice, funding and support for the innovation outcomes of such collaborations.'

As can be seen from the above definition innovation intermediaries are generally perceived as independent third parties that play an integral part in collaborative activities supporting any aspect of the innovation process. Surely, different intermediaries will have different roles and responsibilities and address different gaps. This is categorized by (Howard Partners, 2007) as follows:

- ?? *Information* gaps—gaps encountered by firms in identifying relevant, useful and applicable techniques for product and service development.
- ?? *Access* gaps—difficulties encountered by firms in accessing technologies and knowledge which they know to exist but are unsure about how to go about acquiring it.
- ?? *Transfer* gaps—negotiation of licence and consultancy/contract agreements, as well as project management. may be beyond the capability of businesses, particularly small to medium businesses.

?? *Translation* gaps—developing and transforming knowledge embedded in a technology into a form and format that can be used in product, service and/or business development.

All these different gaps exist in different sectors/countries. Further, the potential role that intermediaries play in the broader innovation system needs investment. Intermediaries can include universities, other research organisations and other businesses but our focus in this paper are different projects funded internationally in Ethiopia.

3. Three Cases

GL-CRSP PARIMA

The GL-CRSP Pastoral Risk Management Project (PARIMA) was established in 1997 and conducts research, training, and outreach in an effort to improve welfare of pastoral and agro-pastoral peoples with a focus on northern Kenya and southern Ethiopia. Livestock markets in Ethiopia function at three levels: primary, secondary and terminal markets. Primary being the village level and the terminal the urban ones, the secondary markets are usually through the middlemen and traders. Supply of livestock to these markets is mostly done through trekking. This also is one of the reasons which affect the health of the animals and also cause weight loss. The main problem of the private companies is that they can not get enough animals at the required levels. Another reason for this is the unwillingness of the pastoralists who see their animals as an insurance and sell them usually when they need cash. The above mentioned supply problems of the private companies was partly solved by Parima project by linking them with the pastoralists. To deal with this challenge, the project stepped in at a time when the rapid development of a private export industry depended on the supply of small ruminants. This was a requirement that the private sector was unable to fulfill because of a poorly-functioning livestock value chain. The linkage between the pastoralists and the private sector was very weak. The project identified the other constraints as; the long distances to markets, the lack of competitive market outlets other than the Moyale market in Kenya, pastoralists lack of knowledge and skills in marketing, the lack of access to market information, and the lack of funds to capitalize livestock trading. Since 2003, collaborating agencies and PARIMA hold various meetings and exchange tours to directly link pastoral producers with livestock exporters and policy makers. Establishing and maintaining trust among various actors was a major component of the project. The exchange tours allowed pastoral leaders to learn about the size and quality (health) requirements for a new export market involving small ruminants. They also learned about what an export marketing chain entails. Learning also took place on the other end; policy makers and leaders of export firms also learned about the pastoral production potential of the rangeland areas.

Parima project was successful in creation of a *positive market response*. During 2004-2005, 45,000 head of goats and sheep were supplied to export firms by 11 pastoral marketing groups. Moreover, Parima was successful on the creation of a new livestock export marketing chain from the Borana Plateau in Southern Ethiopia where the pastoralist were traditionally viewed as unwilling or unable to trade.

PASTORALIST LIVELIHOODS INITIATIVE (PLI)

Another project funded by the USAID Ethiopia is the Pastoralist Livelihoods Initiative (PLI). During the drought of late 2005 and beginning of 2006 some pastoral areas of southern Ethiopia were affected. PLI, government and NGO partners intervened with various types of livestock-related assistance. One of these interventions was bringing together different actors such as the Department of Fisheries and Livestock Marketing, and Save the Children US and ACDI/VOCA. It involved linking two private livestock traders with pastoralists and facilitating the off-take of cattle. As the intervention progressed, the two traders were provided with loans from Save the Children US of US\$ 25,000 each. The intervention led to the estimated purchase of 20,000 cattle valued at US\$ 1.01 million. On average, de-stocked households received US\$186 from the sale of cattle in the program, and approximately 5,405 households were involved. In terms of aid investment, the approximate benefit cost ratio was 41:1 for the intervention. During the drought, income from de-stocking accounted for 54.2% of household income (n=114 households), and this income was used to buy food, care for livestock, meet various domestic expenses, support relatives, and either pay off debts or added to savings(Abebe et al, 2008). In terms of supporting local markets and services, 79% of the income derived from de-stocking was used to buy local commodities or services. Expenditure on livestock care amounted to 36.5% of the local expenditure, and included the private trucking of livestock to better grazing areas. The buoyant export trade in live cattle and chilled meat was considered to be an important driver of the commercial de-stocking, demonstrating a positive linkage between livestock and meat exports, and pastoral vulnerability during drought (FCI, 2007).

Besides establishing the linkages between pastoralists and livestock traders, the below were realized as important for innovation response capacity:

- the importance of early response;
- the rational use of cash derived from livestock sales;
- the need for integrated responses;
- the role of pre-existing services, markets and infrastructure; and
- the role of government to better enable livestock trade in times of drought.

USAID SPS LMM PROJECT

The project entitled “Ethiopia Sanitary and Phytosanitary Standards and Livestock and Meat Marketing (SPS-LMM) Program” in Ethiopia is financed by USAID Program and implemented by TAES (Texas A & M University) in cooperation with MOARD. The program has an ambitious goal of on increasing meat exports to 30000 mt by 2008, a three-fold increase. The two main objectives are:

- improve capacity of veterinary services for SPS related activities to support Ethiopian meat and livestock exports
- improve Ethiopia’s capacity and competitive advantage for meat & livestock exports

One of the project’s initial role has been the during the FMD ban in 2006. Egypt has become one of the markets for Ethiopia’s livestock and meat. Ethiopia was exporting live animals before an FMD occurrence in Egypt in January 2006. After Egypt stopped importing meat from Ethiopia, SPS-LMM program brought together different stakeholders consisting of both public sector and the private sector representatives and arranged a mission to Egypt. The main objectives were to seek explanation for the interruption of trade in livestock, bring to the attention of the pertinent authorities the case of defaulted payment, and assess the type of meat demand, also facilitate match with making for both sides. The mission established the trust between both sides and also the interactions helped to create new opportunities for the private sector. The private entrepreneurs were trained in Texas A&M university on carcass fabrication and also packaging. It was realized that there was a market for boneless meat in Egypt. It was clear for the private sector representatives to add value to their production and expand their processing lines. As an outcome of this, one of the companies started the exporting of value added products.

4. Comparative Analysis

Looking at the different challenges, the above described intermediaries had crucial roles in developing innovation response capacity. The elements of innovation response capacity are analyzed in the below table.

Table 1. Elements of Innovation Response Capacity

Elements	PARIMA	PLI	USAID SPS LMM
Actors	The Southern Tier Initiative (STI) of the USAID Mission to Ethiopia, AU/ IBAR, the Oromia Pastoral Area Development Commission (OPADC), the Ethiopian Livestock and Fisheries Marketing Department (ELFMD), the Oromia Rural and Agricultural Development Bureau (ORADB), the Oromia Cooperative Promotion Commission (OCPC), the Ethiopian Livestock Exporters Association (ELEA), Action for Development (AFD), the Liben and Moyale wereda Rural and Pastoral Development Offices (RPDO), and the Liben and Moyale worda Coop. (CPO).	MoARD Department of Fisheries and Livestock Marketing, USAID Ethiopia/Feinstein International Center, Tufts University, CARE, IRC, Save the Children US and ACIDI/VOCA and Livestock traders	SPS-LMM, MOARD, Ethiopian Live Animals Traders' Association, Ministry of Foreign Affairs, private sector
Patterns of Interaction	Since 2003, collaborating agencies and PARIMA hold various meetings and exchange tours to directly link pastoral producers with livestock exporters and policy makers.	Various meetings and also taking the traders to the drought affected region	SPS-LMM program brought together different stakeholders consisting of both public sector and the private sector and arranged a mission to Egypt and this mission trips were repeated again to Saudi Arabia and other countries.
Institutions	the need for the development and enforcement of legally binding contracts between buyers and sellers at the local level	For both pastoralists and traders lack of access to information, skills and services, and also to finance	Companies weaknesses and expectations from government
Social Capital	Establishing and maintaining trust among various actors was a major component of the project.	Inclusion of pastoralists in the network	The mission established the trust between both sides and also the interactions helped to create new opportunities for the private sector
Learning	The exchange tours allowed pastoral leaders to learn about the size and quality (health) requirements for a new export market involving small ruminants. They also learned about what an export marketing chain entails. Policy makers and leaders of export firms also learned about the pastoral production potential of the rangeland areas.	Not only the pastoralists and the traders but the others involved in the project learned the importance of creating a positive linkage between livestock and meat exports for the pastoral vulnerability during drought.	The private entrepreneurs were trained in Texas A&M university on carcass fabrication and also packaging. It was realized that there was a market for boneless meat in Egypt.
Enabling Environment	Lack of government coordination	Lack of government coordination	This project was initiated with the request of the government

5. Discussion

As can be seen from the above table, intermediaries had an initial role in bringing different actors together in the early stages of the projects. The need to involve other actors also depends on the patterns of interactions. For example, a low level of interactions at the time of disease outbreak may seriously limit possibilities for innovation response capacity development. Moreover, looking at the interactions (before the intermediaries stepped in) are very poor. For example, before Parima, the pastoralists and the private sector were not linked in the supply chain. Since 2003, collaborating agencies and Parima hold various meetings and exchange tours to directly link pastoral producers with livestock exporters and policy makers. Another example of how this interactions are created by is the USAID SPS LMM Project. The project played a critical role during the FMD ban in January 2006. The companies were not able to create the missing linkages by themselves. This is also related to the habits and practices – institutions- and how they are shaped by history and previous expectations from government. Taking into consideration that Ethiopia was under a communist regime until 1991, the private sector is not able to solve the problems by themselves and still expect government support. Moreover realizing this weakness, the government is trying to make Ethiopian livestock more competitive but also is aware of its own weaknesses.

Obviously, the inclusion and the state of the physical, financial or human resources are important factors. Even sometimes they are necessary conditions to be improved to build the next steps. For example in Parima example, the African Union/Inter- African Bureau for Animal Resources (AU/IBAR) provided financial credit for the pastoral groups. Besides the financial resources, other resources such as human capital resources are also important for both; as provided by the USAID SPS LMM example; connections to Texas A&M university. Ensuring the presence of sufficient complementary resources i.e. infrastructure might be one key site of public policy intervention in achieving various outcomes. This said, not only the resources but also how they are utilized as part of local context are important. This said, intermediaries clearly played a role in how local context is developed. For example, during FMD, it was the USAID SPS LMM project that took the role of sector coordination; organizing mission visits to Egypt to lift the banning of Ethiopian products.

Ideally, public agencies and private agents engage in some interactions however with the help of the intermediaries, interactions between different actors increased. This also contributed to trust-based behaviour. As the experiences of the Parima project showed not only human capital (taken as part of the local context) but also social capital was an important element in a clear understanding of innovation response capacity. For Bourdieu, “the volume of social capital possessed by a given agent ... depends on the size of network connections he can effectively mobilize and on the volume of the capital (economic, cultural or symbolic) possessed in his own right by each of those to whom he is connected” (1986: 249). Looking at the Parima example, pastoralist cooperatives linking with private sector created social capital which enabled the necessity of building of networks between different actors. Nevertheless, the intermediaries played a crucial role in mobilising the resources and bringing the actors together. Moreover, in this

study, the social capital characteristics do not provide a significant value added to understanding the development of innovation response capacity rather than the enhanced collective action.

Learning is an important component of innovation response capacity. For example, during Parima project, the exchange tours allowed pastoral leaders to learn about the size and quality (health) requirements for a new export market involving small ruminants. The pastoralists also learned about what an export marketing chain entails. Learning also took place on the other end; policy makers and leaders of export firms also learned about the pastoral production potential of the rangeland areas. Also, during FMD Ban, learning played a key role. After the mission to Egypt, the companies learned that there was a demand for boneless meat in Egypt. This created another learning opportunity which was provided by the networks of the SPS LMM project. The private entrepreneurs were trained in Texas A&M university on carcass fabrication and also packaging. It was clear for the private sector companies to add value to their production and expand their processing lines.

The Government of Ethiopia has identified the livestock sector as one of the key growth sectors. However, lack of government coordination was detrimental to the enabling environment operate. The potential role of livestock policy in enabling environment, particularly creating linkages with the pastoralists and for the private sector for maximizing the returns on their investment was created by intermediaries.

6. Conclusion

Ethiopia possesses the largest livestock population on the African continent. However, to increase the low level of meat exports and also to deal with different challenges (disease, quality, etc.) has important implications not just for the private sector but also for livelihoods of the poor. This task- to develop the capacity to respond to different challenges is not so easy and there needs to be some elements in place. The main finding of this paper is that in Ethiopia, innovation response capacity development tends to exist as an outcome of intermediations. Review of the three different cases from the livestock sector in Ethiopia indicates that there is a need to focus on missing interactions as a starting point. These interactions need to be aimed at addressing both technological and marketing problems (for the livestock sector). If the appropriate linkages are put in place, the other elements such as social capital and learning will help the response to be stronger. This has been demonstrated in the case of livestock sector in Ethiopia: Intermediaries had a key role in addressing the failures and thus establishing the missing institutions in the innovation system.

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Paper presented in the IV Globelics Conference at Mexico City, September 22-24 2008

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